

ABSTRACT

This invention is directed to mutant SPE-A toxins or fragments thereof, vaccine and pharmaceutical compositions, and methods of using the vaccine and pharmaceutical compositions. The preferred SPE-A toxin has at least one amino acid change and is substantially non-lethal compared with the wild type SPE-A toxin. The mutant SPE-A toxins can form vaccine compositions useful to protect animals against the biological activities of wild type SPE-A toxin.

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